Patent Claims

(1) Method for producing UV polarizers whose polarizing effect is based on dichroitic absorption characterized in that in a first step metal ions are embedded in a glass body in a near-surface layer; and in a second step the glass is tempered to have the metal ions reduced to and precipitated in form of crystalline particles; and in a third step an after-tempering takes place in a non-reducing atmosphere to transform the particles produced in the second step into particles of a bigger size; and in a fourth step metal ions are embedded in a way similar to that one in the first step; and in a fifth step the glass is tempered again, with the metal ions embedded in the fourth step precipitating in the glass in a near-surface layer in form of crystalline particles that are smaller in size than those created in the third step; and in a sixth step the glass body is deformed at temperatures near the glass transition temperature so that the particles of different sizes are all transformed into particles of revolution-ellipsoidal shapes with varying semiaxis ratios.

(2) Method according to claim no. 1 characterized in that the method is copied in the first step through to the third step ~~in accordance with claim no. 1,~~ followed by a step in which the glass is deformed in a way as described in the sixth step ~~in claim no. 1,~~ with the large particles being re-shaped into revolution-ellipsoidal ones, followed by the fourth, the fifth and the sixth step ~~each as described in claim no. 1.~~

(3) Method according to claim no. 1 characterized in that the method is multi-copied in the first step through to the fifth step ~~each as described in claim no. 1,~~ as long until the particles' size profile shows the specified broad dis-

tribution, followed by the sixth step ~~as described in claim no. 1.~~

(4) Method according to ~~claims nos. 1, 2 and 3~~ claim no. 1 characterized in that once all the steps as described ~~in the claims nos. 1, 2 or 3~~ are completed, the glass is tempered at a temperature above a specified lower cooling point and the particles of revolution-ellipsoidal shapes are re-deformed into their original shapes in a limited specific way.

(5) Method according to ~~claims nos. 1, 2 and 3~~ claim no. 1 characterized in that it is silver, gold, copper and/or aluminum ions, or their mixtures, that are embedded.

(6) Method according to claim no. 1 characterized in that the reduction process according to the second step as described ~~in claim no. 1~~ takes place in a reducing atmosphere.

(7) Method according to claim no. 1 ~~or claim no. 6~~ characterized in that the reduction process takes place in a hydrogen gas or in a hydrogen/nitrogen gas atmosphere.

(8) Method according to claim no. 1 characterized in that the reduction process according to the second step as described ~~in claim no. 1~~ takes place in a non-reducing atmosphere with the metal ions being reduced by substances that are already existent in the glass and have a reducing effect.

(9) Method according to claim no. 1 ~~or claim no. 2~~ characterized in that the third step as described ~~in claim no. 1 or claim no. 2~~ takes place at a temperature above 300°C, but not exceeding 700°C.

(10) Method according to claim no. 1 ~~or claim no. 2 or claim no. 3~~ characterized in that the glass is stretched in such a way that it becomes twice or even 30 times as long as it was before drawing.

(11) Method according to claim no. 1 ~~or claim no. 2 or claim no. 3 or claim no. 10~~ characterized in that an only narrow heating zone is used in such continuous deforming process, and after drawing the glass is cooled down fast enough to prevent any re-deformation of the revolution-ellipsoidal particles.

(12) Method according to ~~claims nos. 1 through to 3~~ claim no. 1 characterized in that energy is locally applied to very narrow areas in the glass body's surface causing a specific re-deformation of the revolution-ellipsoidal particles.

(13) Method according to ~~claims nos. 1 through to 3, or claim no. 12,~~ claim no. 1 characterized in that such energy input is made by means of Laser and/or electron beam technology.

(14) Method according to ~~claims nos. 1 through to 3~~ claim no. 1 characterized in that the glass surface is masked and thin surface layers are etched away from it.

(15) Method according to ~~claims nos. 1 through to 3, or claim no. 12 or claim no. 13 or claim no. 14,~~ claim no. 1 characterized in that such local energy input and/ or such masking and etching away is used to produce polarizers of a structured design.